

WHAT IS CLAIMED

1. A method of detecting a ground fault on a span-powered telecommunication wireline to which a remote telecommunication device is coupled and powered thereby, comprising the steps of:

(a) measuring a first parameter representative of current flowing in a first portion of said wireline to said remote telecommunication device;

(b) measuring a second parameter representative of current flowing in a second portion of said wireline from said remote telecommunication device; and

(c) in response a difference in said first and second parameters providing an output representative of a ground fault in said wireline.

2. The method according to claim 1, wherein step (a) comprises coupling a first sense resistor in said first portion of said wireline and generating a first output voltage representative of current flowing in said first sense resistor, step (b) comprises coupling a second sense resistor in said second portion of said wireline and generating a second output voltage representative of current flowing in said second sense resistor, and step (c) comprises detecting a difference between said first and second output voltages, and generating an output representative of a ground fault in response to a prescribed difference between said first and second output voltages.

3. The method according to claim 2, wherein step (a) comprises coupling said first sense resistor to a current mirror that is operative to generate an output current in accordance with current flowing through said first sense resistor, and coupling said current mirror to a differential amplifier, which generates an output for controlling current through a controlled current device coupled in circuit with said current mirror and an output resistor across which said first output voltage is produced.

4. The method according to claim 3, wherein step (b) comprises coupling a voltage across said second sense resistor to a differential amplifier, which produces said second output voltage, and step (c) comprises differentially combining said first and second output voltages to provide said output representative of a ground fault in said wireline.

5. An apparatus for detecting a ground fault on a span-powered telecommunication wireline to which a remote telecommunication device is coupled and powered thereby, comprising:

a first circuit section which is operative to measure a first parameter representative of current flowing in a first portion of said wireline to said remote telecommunication device;

a second circuit section which is operative to measure a second parameter representative of current

flowing in a second portion of said wireline from said remote telecommunication device;

a differential circuit, coupled to said first and second circuit sections, and being operative, in response a difference in said first and second parameters, to provide an output representative of a ground fault in said wireline.

6. The apparatus according to claim 5, wherein said first circuit section comprises a first sense resistor coupled in said first portion of said wireline and a first voltage generator coupled thereto that is operative to generate a first output voltage representative of current flowing in said first sense resistor, said second circuit section comprises a second sense resistor coupled in said second portion of said wireline and a second voltage generator coupled thereto and being operative to generate a second output voltage representative of current flowing in said second sense resistor, and wherein said differential circuit is operative to detect a difference between said first and second output voltages, and to generate an output representative of a ground fault in response to a prescribed difference between said first and second output voltages.

7. The apparatus according to claim 6, wherein said first circuit section includes a current mirror coupled to said first sense resistor and being operative

to generate an output current in accordance with current flowing through said first sense resistor, and a differential amplifier coupled to said current mirror and being operative to generate an output for controlling current through a controlled current device coupled in circuit with said current mirror and an output resistor across which said first output voltage is produced.

8. The apparatus according to claim 7, wherein said second circuit section comprises a differential amplifier inputs to which are coupled across said second sense resistor, said differential amplifier being operative to produce said second output voltage.

9. A method of detecting a ground fault on a span-powered telecommunication wireline within a plurality of span-powered wireline segments to respective ones of Digital Subscriber Line - Central Office Terminals (DSL-Cs) are coupled, so that a ground fault may be detected when power is delivered by the DSL-C over a respective wireline segment to a respective downstream functional Remote Terminal (RT), said method comprising the steps of:

(a) at said DSL-C, measuring a first parameter representative of current flowing in a first portion of said respective wireline segment to said RT, and measuring a second parameter representative of current

flowing in a second portion of said respective wireline segment from said RT; and

(b) at said DSL-C, in response a difference in said first and second parameters providing an output representative of a ground fault in said wireline.

10. The method according to claim 9, wherein step (a) comprises coupling a first sense resistor in said first portion of said wireline segment and generating a first output voltage representative of current flowing in said first sense resistor, and coupling a second sense resistor in said second portion of said wireline segment and generating a second output voltage representative of current flowing in said second sense resistor, and step (b) comprises detecting a difference between said first and second output voltages, and generating an output representative of a ground fault in said respective wireline segment in response to a prescribed difference between said first and second output voltages.

11. The method according to claim 10, wherein step (a) comprises coupling said first sense resistor to a current mirror that is operative to generate an output current in accordance with current flowing through said first sense resistor, and coupling said current mirror to a differential amplifier, which generates an output for controlling current through a controlled current device coupled in circuit with said current mirror and

an output resistor across which said first output voltage is produced.

12. The method according to claim 11, wherein step (a) further comprises coupling a voltage across said second sense resistor to a differential amplifier, which produces said second output voltage, and step (b) comprises differentially combining said first and second output voltages to provide said output representative of a ground fault in said respective wireline segment.